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ONTARIO WATER
RESOURCES COMMISSION

ANNUAL REPORT

1961

VILLAGE OF FRANKFORD

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ANNUAL REPORT

ON

VILLAGE OF FRANKFORD

WATER SUPPLY AND SEWAGE TREATMENT SYSTEMS

OWRC PROJECT - 58-S-8

FRANKFORD WATER SUPPLY AND SEWAGE TREATMENT SYSTEMS

OPERATED FOR

VILLAGE OF FRANKFORD

BY

THE ONTARIO WATER RESOURCES COMMISSION

Mr. A. M. Snider - Chairman

Dr. A. E. Berry - General Manager

Mr. D. S. Caverly - Assistant General Manager and Director of Plant Operations

Mr. B. C. Palmer - Assistant Director, Division of Plant Operations

Mr. A. Clark - Project Engineer, Division of Plant Operations

Prepared by the

Division of Plant Operations.

SYSTEM CAPACITIES

Water:

Pumping Station and Well.

Pump capacity --------- 300 IGPM

Distribution System -- 115,000 gallon standpipe reservoir
water mains, hydrants, valves and
appurtenances.

Capital Cost - $119,313.00

Sewage:

The sewage is collected in a system of sewers and brought to a collecting well at the sewage treatment plant.

Type of plant -- High rate trickling filter

Design Population -- 2700 ultimately

Per Capita Flow -- 200 gallons per day (3 DWF)

Design Plant Flow -- Primary : 540,000 gpd
Secondary: 120,000 gpd

Raw Sewage Pumping Station:

2 pumps - 1 electric, 1 cfs @ 20' head = 540,000 gpd
- 1 gasoline - standby

wet well- 16' x 3' x 3'
capacity 550 gallons (with tapered sump)
float control to pumps

Screening:

Coarse bar screen - 1/2" x 1 1/2" bars @ 1" crs.

Grit Removal:

2 units 2' x 9' x 12" water depth @ 1 cfs - velocity 0.5 ft./sec.

Settling Tank - mechanically cleaned

16'6" x 60' x 7'5" water depth

Volume - 7455 cu.ft. or 46,500 gallons

Retention period @ 1 cfs = 2 hrs.

Surface settling rate - 565 gals/sq. ft. tank/day

Overflow rate - 33,800 gals/lin.ft. weir/day

Trickling Filter - design flow 120,000 gpd

42 ft. dia. 4 ft. deep

Media pass 5" retained on 3" screen

Recirculation 3:1 back through primary tank

1.5 lbs. BOD/cu. yd. media/day

Final Settling Tank:

Earth banked pond 16' x 40' x 3' deep

Retention - 2 hrs.

also used as chlorine contact chamber.

Total Capital Cost - $163,344.

WATER QUALITY

The water was sampled from various locations each month. With the exception of two samples, the water was tested Class A.

Sewage Sampling:

	Influent		Effluent	
DATE	B.O.D.	S.S.	B.O.D.	S.S.
January 16	145	136	70	38
April 3	---	66	44	20
June 20	145	188	6.8	24

Sewage Sampling Cont'd

	Influent		Effluent	
DATE	B.O.D.	S.S.	B.O.D.	S.S.
Sept. 12	295	428	11	34
Sept. 26	110	142	17	32
Oct. 23	175	152	26	18
Nov. 20	165	124	33	16
TOTAL:	1035.00	1236.00	207.8	182.00
AVERAGE:	176.0	176.5	29.6	26.0

∴ Average % efficiency in B.O.D. removal - 83%

Average % efficiency in S. S. removal - 85%

Assuming the sewage treatment plant treated the amount of fresh water supplied 14,756,000 gallons approximately

147.56 x (176.0 - 29.6)

= 147.56 x 146.4 = 21,600 lbs.B.O.D. removed.

and 147.56 x (150.5) = 22,300 lbs. S.S. removed.

It should be noted that when the ambient temperature drops substantially below 32 °F. the trickling filter has to be shut off. This is usually from mid December to April. Primary treatment only is given during this time.

During 1961, a time-totalizer was installed on the raw sewage pump to aid operation and determine flows. This mechanism records graphically the time and duration of pumping. It also gives hourly total pumping time.

Due to recirculation in the trickling filter, the flow cannot be computed daily. However, the time-totalizer was used to determine the percentage recirculation. When the trickling filter is not operating, the raw sewage flow can be calculated.

A culvert pipe was supplied so that the final chamber can be by-passed. This facilitates the removal of settled solids from the final tank.

OPERATING COSTS

Water:

14,756,000 gallons were pumped for an operating cost of $411.11

Unit cost - 2.8¢ per 1000 gallons.

Sewage:

Approximately 14,756,000 of sewage were treated for an operating cost of - $5,451.67

Unit cost - 37¢ per 1000 gallons

Cost per lb. BOD removed - 25.4¢

146 x 147 = 21,500 lbs.

Cost per lb. S.S. removed - 24.7¢

BUDGETS

Water(57-W-2)	Payments in 1961	Forecast 1962
Payroll		
Fuel		
Power	$ 258.87	$ 400.00
Chemical		
General Supplies	145.30	20.00
Equipment		
Repairs and Maintenance		500.00
Sundry	6.94	200.00
TOTAL:	$ 411.11	$1120.00

Sewage (58-S-9)	Payments in 1961	Forecast 1962
Payroll	$ 3,531.36	$ 3,800.00
Fuel	49.50	60.00
Power	489.82	700.00
Chemical	343.87	160.00
General Supplies	354.87	400.00
Equipment	157.03	300.00
Repairs and Maintenance	33.00	280.00
Sundry	492.75	1,000.00
TOTAL:	$5,451.67	$ 6,700.00